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An Objective Technique to Estimate Percentage of  
An ERTS-1 Water Boundary Resolution Element Covered  
by Water

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An objective technique was developed by the Coastal/Estuarine Analysis Team to measure the surface area of water bodies. 19 water bodies in the Houston and Galveston, Texas area were selected as a basis for the technique development. The actual surface area of each body was determined from rectified and enlarged NASA aircraft photography. A clustering algorithm was used to produce classification maps of the region from ERTS-1 data. Certain classes were identified as being 100% water. Other classes were identified as being mixtures of water with land or vegetation. The number of picture elements falling on each water body and its boundary were counted. A linear regression analysis was performed to relate the total number of picture elements and boundary elements counted to the actual surface area. The standard error of the estimate was 6.7 acres. The absolute error was not a function of the actual surface area of the water body.

(E73-10675) AN OBJECTIVE TECHNIQUE TO  
ESTIMATE PERCENTAGE OF AN ERTS-1 WATER  
BOUNDARY RESOLUTION ELEMENT COVERED BY  
WATER (NASA) 1 p HC \$3.00 CSCL 08H

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